DOCUMENT RESUME

ED 169 338 CE 020 523

AUTHOR Lanford, Frank
TITLE T & I--Automotive Body Repair. Kit No. 49. Instructor's Manual [and] Student Learning Activity Guide.
INSTITUTION Clemson Univ., S.C. Vocational Education Media Center.; South Carolina State Dept. of Education, Columbia. Office of Vocational Education.
SPONS AGENCY Office of Education (DHEW), Washington, D.C.
PUB DATE 78
GRANT SC-5058-76-I-211-0330
NOTE 65p.; For related documents see CE 020 474-566
AVAILABLE FROM Vocational Education Media Center, 10 Tillman Hall, Clemson University, Clemson, South Carolina 29631 (complete set of modules, 14 filmstrips and cassettes, $260.00; set of 87 student modules, $42.50)

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS *Auto Body Repairmen; Behavioral Objectives; *Learning Activities; *Learning Modules; Occupational Clusters; *Occupational Information; Prevocational Education; *Trade and Industrial Education; Transparencies

ABSTRACT

An instructor's manual and student activity guide on automotive body repair are provided in this set of prevocational education materials which focuses on the vocational area of trade and industry. (This set of materials is one of ninety-two prevocational education sets arranged around a cluster of seven vocational offerings: agriculture, home economics, distributive education, health occupations, world of work, trade and industry, and office occupations.) The instructor's guide is organized into the following elements: title of activity, duration of activity (four to seven periods), activity goals, three instructional objectives, related vocational clusters, and activity implementation (description, materials needed, safety considerations, teacher preparation prior to class, during the class, follow-up activities, answer key to student check point activities, and masters for duplication [e.g., student check point booklet, labels for tools and equipment, and safety rosters]). A set of transparencies is also provided. The student activity guide provides step-by-step instructions (narrative and illustrations) for completing each instructional objective (e.g., straighten and prepare material by sanding and hammering). At the end of each set of instructions is a student check point (evaluation activity). Occupational descriptions for a spray painter and automobile-body repairer conclude the document. (JH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED169338

T & I – AUTOMOTIVE BODY REPAIR

Kit No. 49

INSTRUCTOR'S MANUAL

Prepared by

Mr. Frank Lanford
Seneca High School
Seneca, South Carolina 29678

State Department of Education
Office of Vocational Education
Prevocational Education
Columbia, South Carolina 29201

In Cooperation With

Vocational Education Media Center
Clemson University
Clemson, South Carolina 29631

1978

CE 020 523

U.S. DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY.

"PERMISSION TO REPRODUCE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY

Curt Jensen

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

These materials have been developed from funds provided by Grant SC-5058-76-I-211-0330 under the Appalachian Regional Development Act Amendments of 1967, Department of Health, Education and Welfare, Office of Education.

TITLE OF ACTIVITY

Kit No. 49, T & I – Automotive Body Repair

DURATION

Main Activity - 3 periods
Follow-up Activity - 1 to 4 periods

GOALS

The student will become familiar with the processes involved in preparing metal to be filled.

The student will learn how to apply and repair a damaged area using plastic filler.

The student will learn how to finish the damaged area, making it ready for painting.

INSTRUCTIONAL OBJECTIVES

Given the necessary tools and equipment, the student will straighten and prepare the material by sanding and hammering.

Given the necessary tools and equipment, the student will fill and file the damaged area, preparing it for finishing.

Given the necessary tools and materials, the student will successfully sand and prime the work surface in preparation for a finished coat of paint.

VOCATIONAL CLUSTERS

Health Occupations

ACTIVITY IMPLEMENTATION

A. Activity Description

This activity is designed to expose the student to some basic processes of auto body repair. An old bent-up piece of metal or car fender will serve as the work piece.

By using an activity guide, two students will follow step-by-step instructions, moving from one color area to the next. A checklist will be completed for each area and then corrected by the instructor before the students move to the next color area. There are three (3) areas the students work in before the project is completed. The necessary tools and equipment for successful completion of each color area will be located within that area. It is suggested that students work in pairs to make the handling of materials easier.

Students will be given one Student Learning Activity Guide, one Checklist Booklet each, and one piece of metal for every two students.

B. Safety

The safety rules will be stated under each color area. They will be on posters in the color areas.

RED AREA:

Wear safety glasses.

Loose - fitting clothing and neckties should not be worn when using the disc sander.

Make sure the disc sander is in the OFF position when connecting it to a power source.

When the disc sander is not in use, it should be laid on the floor with the disc facing up.

Notify persons around you before you start sanding with the disc sander.

YELLOW AREA:

Wear safety glasses.

Wear particle mask while sanding and spraying primer.

Spray primer in well-ventilated area only.

(a) fumes are dangerous
(b) fumes are very combustible

C. Materials Required

1. Audio Visual Equipment
   Overhead projector
   Screen or wall space
2. Technical Equipment
   (for 25 students)
   5 wire brushes
   5 body hammers (bumping)
   5 body hammers (pick)
   6 dollies (general all-purpose)
   3 power disc sanders
   3 rubber backing pads

first-aid kit
5 body files (flat)
25 safety glasses
5 screwdrivers
5 ball peen hammers
4 sets putty spreaders or squeegees
12 sanding blocks
3 signs for color areas
    Red Area
    Blue Area
    Yellow Area
3 signs for color stages
    Preparation
    Repairing
    Finishing
3 stands 8" x 8" x ¾" (20.32 cm x 20.32 cm x 1.91 cm)
3 dowel rods 24" x ½" (60.96 cm x 1.27 cm)
3 boxes sandpaper (labeled): (1) 80 grit (2) 240 grit (3) 400 grit

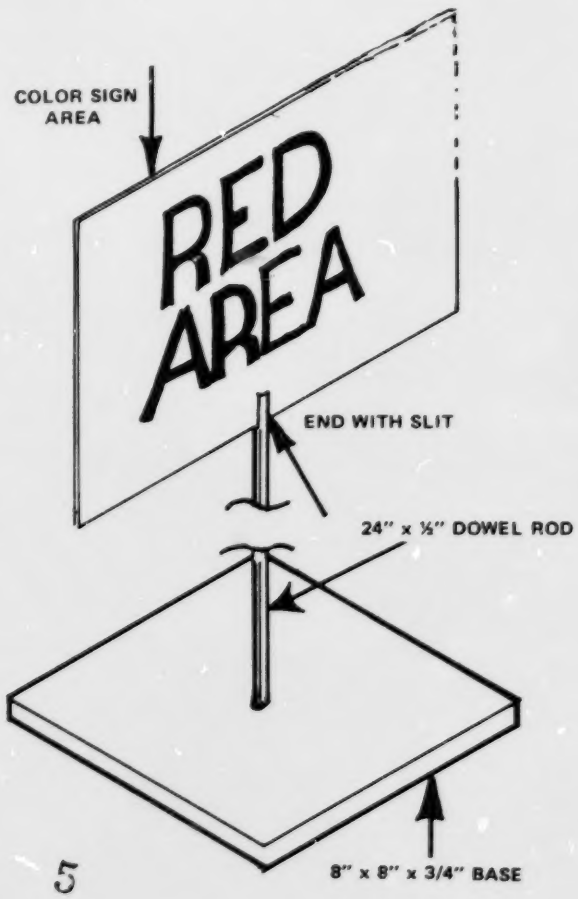
3. Expendable Supplies
5 disc sanding pads
12 sticks 12" long (30.48 cm)
12 pieces cardboard 12" x 12" (30.48 cm x 30.48 cm)
1 gallon (3.78 l) plastic filler
1 tube hardener
4 spray cans primer
Auto body sandpaper, 25 sheets each:
    80 grit
    240 grit
    400 grit
Armful rags
25 particle masks
1 piece metal for every two students, 2' x 2' (.61 m x .61 m)

D. Preparation Prior to Class

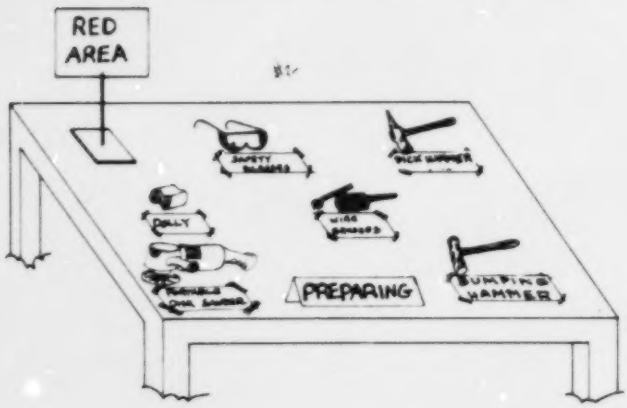
Obtain the following:
    disc sanding pads
    cardboard and sticks
    plastic filler
    hardener
    primer
    sandpaper
    rags
    particle masks
    activity kit
    available screen or wall space
    overhead projector
    metal to be worked
    wastebaskets (2)

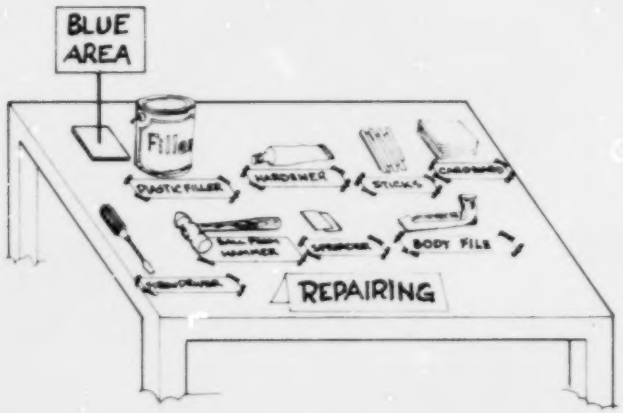
Locate three (3) work areas in your classroom. One of these areas (finishing – Yellow Area) must be located in a well-ventilated place such as in front of an open window.

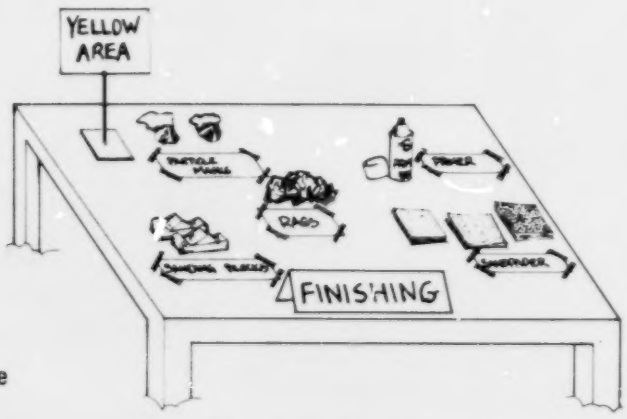
Assemble color area signs.



Set up each color area by using the following drawings as guides.







Tape the tool and equipment labels to the table.

Hang the safety posters in appropriate areas.

Cut the 80, 240, and 400 grit sandpaper in strips to fit the sanding blocks.

Assemble disc sanding pads to the rubber backing pads on the hand disc sander.

Duplicate and staple together the Checkpoint Booklet. Be sure you have a booklet for each student in the class. The masters for the booklet are provided in your manual.

Duplicate the VIEW Fact Sheet and Interview Survey Sheet, one per student. Place in a file folder and label "Follow-up Activities."

Obtain the number of activity guides needed.

Assemble the transparencies for Introduction.

Set-up the overhead projector.

Place the first-aid kit in a convenient location in classroom.

E. During Class Session

Have students obtain one Student Learning Activity Guide and one Checkpoint Booklet.

INTRODUCTION – This activity is designed to expose each of you to some basic processes of auto body repair. You will work in pairs to make the handling of materials easier. By using your Activity Guide and Checkpoint Booklet, you will follow a step-by-step process moving from one color area to the next color area until you complete the project.

Look at (transparency 1) the flow chart. Notice that each area is identified by a color; (Transparency 2) for example, the Blue Area. The necessary tools and equipment for successful completion of the activity are located within this area.

Open the activity guide to the Blue Area. (Transparency 3) Notice the illustration and the step-by-step instructions. After the successful completion of each area, answer the Checkpoint. In this case, answer the Blue Area Checkpoint.

(Transparency 4) Open your Checkpoint Booklet to the Blue Area Checkpoint. Complete the checkpoint. Ask your instructor to check your work before proceeding to the next color area. Do not go to the next color area until you have successfully completed the Blue Area.

Observe the safety rules. They are listed on posters within the color area they pertain to.

(Transparency 5) For example:

RED AREA:

1. Wear safety glasses. (demonstrate)
2. Loose-fitting clothing and neckties should not be worn when using the disc sander. (demonstrate)
3. Make sure the disc sander is in the OFF position when connecting it to a power supply. (demonstrate)
4. When the disc sander is not in use, it should be laid on the floor with disc facing up. (demonstrate)
5. Notify persons around you before you start sanding with the disc sander. Why? Sparks fly from the sander.

(Transparency 6)

YELLOW AREA

1. Wear safety glasses.
2. Wear particle masks while sanding and spraying the primer. (demonstrate)
3. Spray primer in a well-ventilated area.
   (a) fumes are dangerous
   (b) fumes are very combustible.

(With these safety facts in mind, open class up for discussion. Take up Activity Guides and Checkpoint Booklets at the end of class period). **Second Day:** Hand out Activity Guides and Checkpoint Booklet.

Instruct students to NOT write in Student Learning Activity Guides.

Let students work in pairs.

Issue one piece of metal to each pair of students.

Oversee the activity and advise only when needed.

Take up Activity Guides at end of period. **Third Day:** Issue Activity Guides.

Oversee activity.

F. Follow-up Activities

At least one of the follow-up activities should be chosen or combine the four for a complete study. It is suggested that the use of the VIEW Fact Sheet be considered.

1. The student will fill out the VIEW Fact Sheet.
2. Using a copy of the Interview Survey Sheet, the student will interview a person currently employed in the auto body repair business.
3. Group Activity: The students will discuss their likes and dislikes of the activity.
4. Using the newspaper or possibly a local job service, the student will locate and record advertisements for jobs relating to auto body repair.

ANSWER KEY

Checkpoint – Red Area

1. yes
2. yes
3. yes
4. B

Checkpoint – Blue Area

1. yes
2. yes
3. yes
4. yes

Checkpoint – Yellow Area

1. yes
2. yes
3. yes
4. yes
5. yes

MASTERS FOR DUPLICATION

VIEW Fact Sheet
Student Checkpoint Booklet
Interview Survey Sheet
Labels for Tools and Equipment
Safety Posters

VIEW FACT SHEET

NAME _____ CLASS _____ OCCUPATION _____

A. List the advantages (good points) of this occupation (job).

B. List the disadvantages (bad points) of this occupation (job).

C. List three things you should know to do this occupation (job).
1.
2.
3.

D. What type of education should you get to be prepared (do) for this occupation (job)?

E. What courses must you take to go into this occupation (job)?

F. What do you think your future in this occupation (job) will be?

G. What wage can you expect in this occupation (job)?

H. What are the working hours of this occupation (job)?

I. To learn more about this occupation (job), write to:

J. Using a scale of 1 to 5, circle the number that measures your interest in this occupation (job) as a possible career.

I don't like it. 1 2 3 4 5 I like it.

CHECKPOINT – RED AREA

PREPARING METAL

Check "yes" or "no."

1. Have you raised all the dents back close to the original shape of the metal?
   ___ yes ___ no

2. Have you removed all the paint and rust from the area to be filled?
   ___ yes ___ no

3. Did you tap the high spots on your metal down, so when you fill the area with plastic filler there will not be a high ridge?
   ___ yes ___ no

4. Circle the correct answer:
   What type of hammering did you use with the body hammer and dolly?
   A. –on–the–dolly hammering
   B. –off–the–dolly hammering

5. After you have answered these questions, have your instructor check your work.

6. If you have successfully completed these questions, move to the Blue Area in your Activity Manual.

7. If you need to do more work, return to Step 1 and start over.

CHECKPOINT – BLUE AREA

REPAIRING

Check "yes" or "no."

1. Did you mix the correct amount of hardener with the plastic filler?
   ___ yes ___ no

2. Did you apply enough filler to your work area to build it up a little for sanding?
   ___ yes ___ no

3. Did you wait at least 20 minutes before filing your filler?
   ___ yes ___ no

4. Did you place the cap on the plastic filler container tightly?
   ___ yes ___ no

5. After you have completed these questions, have your instructor check your answers.

6. If you have successfully completed these questions, move to the Yellow Area.

7. If you need to do more work, return to step 1 in the Blue Area of your manual and correct your mistakes.

CHECKPOINT – YELLOW AREA

FINISHING

Check "yes" or "no."

1. Did you use 80 grit sandpaper to start your sanding?

   ___ yes___ no

2. Did you then use 240 and 400 grit sandpaper to finish?

   ___ yes ___no

3. Did your spray a thin coat of primer between each sanding?

   ___ yes ___no

4. Did you featheredge the old paint into your damaged area?

   ___ yes ___no

5. Is your finished surface free of scratches and dents?

   ___yes ___no

6. If you have completed these questions, have your instructor check your work.

7. If you have successfully completed your work, sign your name to this booklet and turn it in to your instructor.

8. If additional work is necessary, return to step 1 of the Yellow Area and correct your mistakes.

INTERVIEW SURVEY SHEET

Name of Interviewer: _____

Name of Person Interviewed: _____

Age: _____ Sex: _____

Title of Job: _____

Years Employed at that Job: _____
(TOTAL)

Likes of Job: _____

_____

_____

Dislikes of Job: _____

_____

_____

Hours of Work Per Day (average): _____ Hourly Earnings: _____

Comments of Interviewer: _____

_____

_____

_____

ALL PURPOSE DOLLY

PICK HAMMER

WIRE BRUSHES

BUMPING HAMMER

PORTABLE DISC SANDER

12

SAFETY GLASSES

16

17

STICKS

13

CARDBOARD

HARDENER

18

19

PLASTIC FILLER

SCREWDRIVERS

BALL PEEN HAMMER

SPREADERS OR SQUEEGEES

BODY FILES

15

PARTICLE MASKS

BLOCKS SANDING

PRIMER

SANDPAPER

RAGS

YELLOW AREA

1. WEAR SAFETY GLASSES

2. WEAR PARTICLE MASK WHILE SANDING AND SPRAYING PRIMER

3. SPRAY PRIMER IN WELL VENTILATED AREA
   (A) FUMES ARE DANGEROUS
   (B) FUMES ARE VERY COMBUSTIBLE

RED AREA

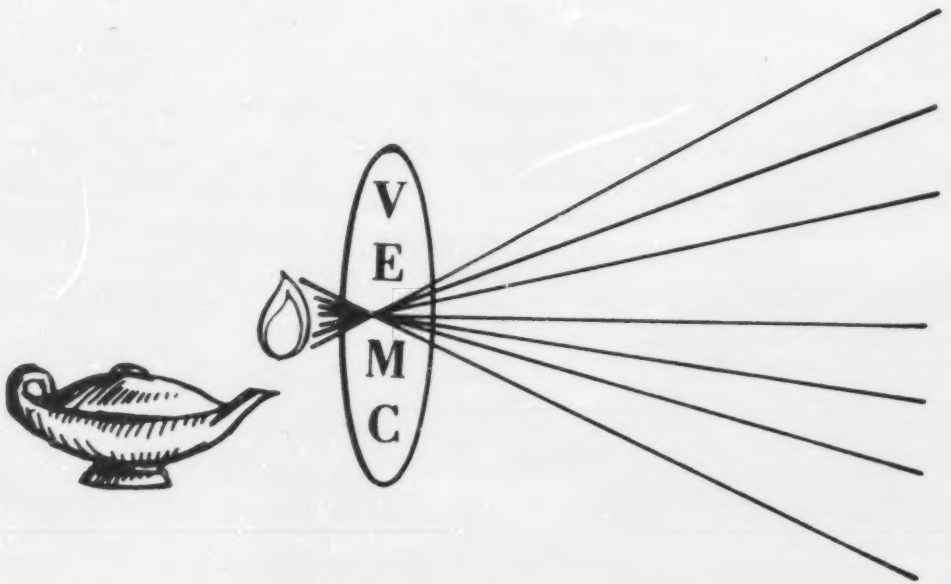
1. WEAR SAFETY GLASSES

2. LOOSE FITTING CLOTHING AND NECKTIES SHOULD NOT BE WORN WHEN USING THE DISC SANDER

3. MAKE SURE THE DISC SANDER IS IN THE OFF POSITION WHEN CONNECTING TO A POWER SUPPLY

4. WHEN THE DISC SANDER IS NOT IN USE , IT SHOULD BE LAID ON THE FLOOR WITH THE DISC FACING UP

5. NOTIFY ANYONE AROUND YOU BEFORE YOU START SANDING WITH THE DISC SANDER

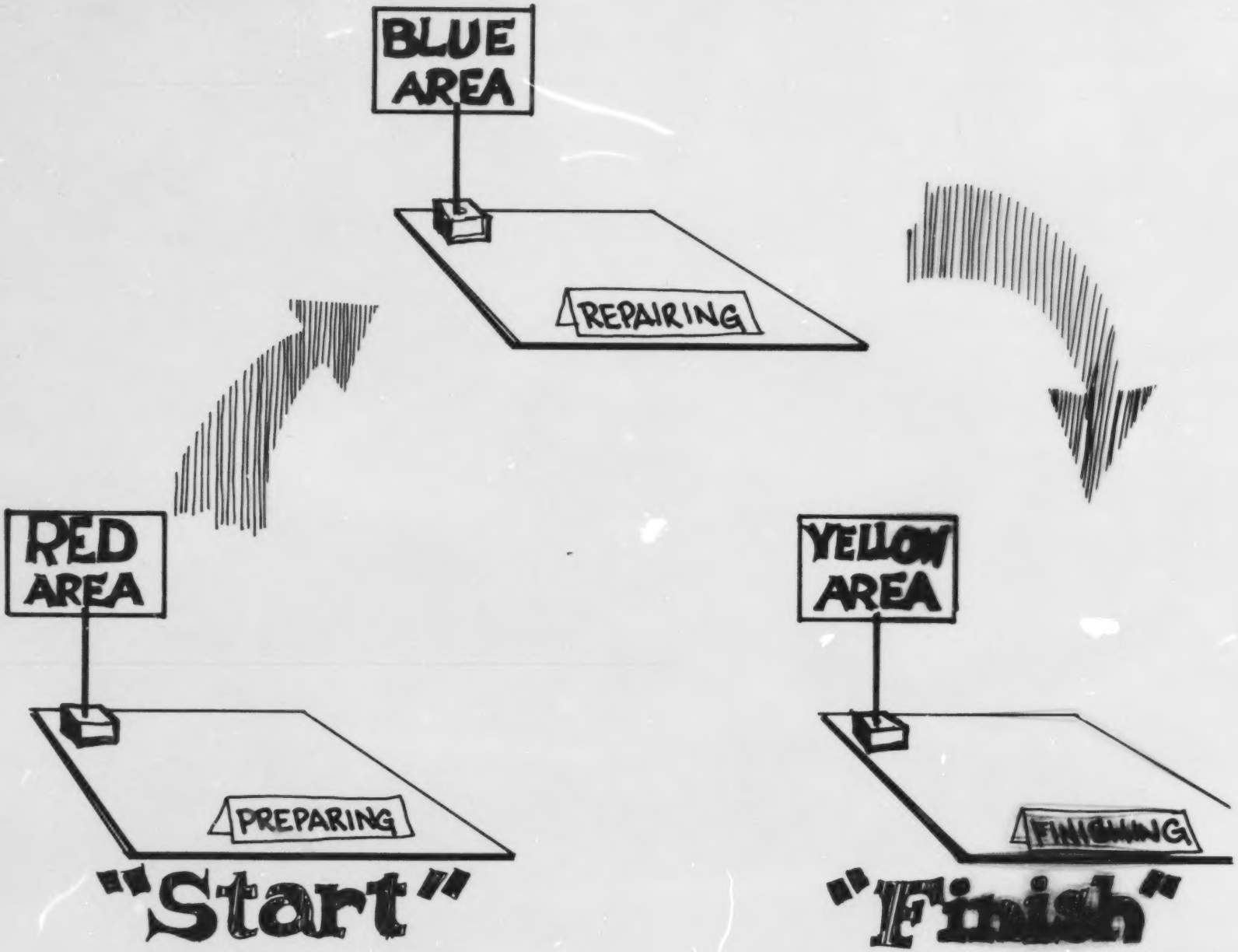


PRODUCED BY:

OFFICE OF VOCATIONAL EDUCATION
STATE DEPARTMENT OF EDUCATION
COLUMBIA, SOUTH CAROLINA 29201

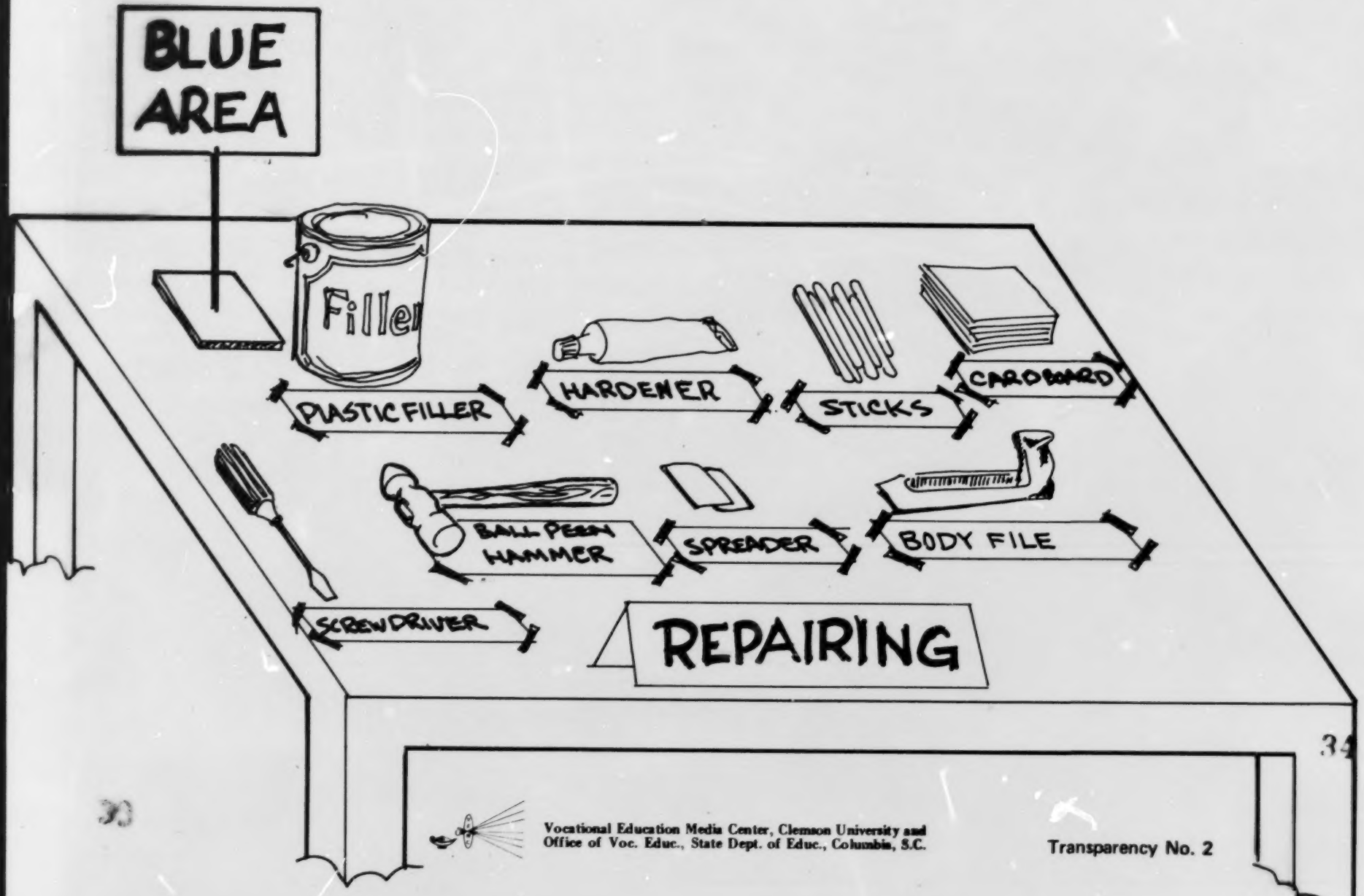
IN COOPERATION WITH:

VOCATIONAL EDUCATION MEDIA CENTER
CLEMSON UNIVERSITY
CLEMSON, SOUTH CAROLINA 29631



Vocational Education Media Center, Clemson University and
Office of Voc. Educ., State Dept. of Educ., Columbia, S.C.

Transparency No. 1



Vocational Education Media Center, Clemson University and Office of Voc. Educ., State Dept. of Educ., Columbia, S.C.

Transparency No. 2

– RED AREA

Check Point

Answer all the following questions on the RED AREA HANDOUT. DO NOT WRITE IN THIS BOOKLET.

Check "yes" or "no."

1. Have you raised all the dents back close to the original shape of the material? yes no
2. Have you removed all the paint and rust from the area to be filled? yes no
3. Did you tap the high spots on your metal down so that when you filled the area with plastic filler there were not any high ridges? yes no
4. Circle the correct answer:
   What type of hammering did you use with the body hammer and dolly?
   A. on-the-dolly hammering
   B. off-the-dolly hammering
5. After you have answered these questions, have your instructor check your work.
6. If you have successfully completed these questions, move to the Blue Area.
7. If you need to do more work, return to Step 1 and start over.

BLUE AREA – REPAIRING

Instructional Objective II

Given the necessary tools and equipment, the student will fill and file the damaged area, preparing it for finishing.

STEP 1 – Move to the BLUE AREA and review the tools and materials by their proper names.

No. 1 – plastic filler
No. 2 – hardener
No. 3 – spreaders or squeegees
No. 4 – files (flat)
No. 5 – screwdrivers
No. 6 – ball peen hammer
No. 7 – cardboard
No. 8 – sticks

STEP 2 – Secure a can of plastic filler from the blue area.

Transparency No. 3

CHECKPOINT – BLUE AREA

REPAIRING

Check "yes" or "no."

1. Did you mix the correct amount of hardener with the plastic filler?
   ___ yes ___ no

2. Did you apply enough filler to your work area to build it up a little for sanding?
   ___ yes ___ no

3. Did you wait at least 20 minutes before filing your filler?
   ___ yes ___ no

4. Did you place the cap on the plastic filler container tightly?
   ___yes ___no

5. After you have completed these questions, have your instructor check your answers.

6. If you have successfully completed these questions, move to the Yellow Area.

7. If you need to do more work, return to step 1 in the Blue Area of your manual and correct your mistakes.

Transparency No. 4

RED AREA

1. Wear Safety Glasses
2. Loose Fitting Clothing And Neckties Should Not Be Worn While Using The Disc Sander
3. Make Sure The Disc Sander Is In An "OFF" Position When Connecting It To A Power Supply
4. When The Disc Sander Is Not In Use, It Should Be Laid On The Floor With The Disc Facing Up
5. Notify Anyone Around You Before You Start Sanding With Disc Sander

TAPE

Vocational Education Media Center, Clemson University and Office of Voc. Educ., State Dept. of Educ., Columbia, S.C.

YELLOW AREA

1. Wear Safety Glasses

2. Wear Mouth Cap While Sanding And Spraying

3. Spray In Well Ventilated Area
   - A. Fumes Are Dangerous
   - B. Fumes Are Very Combustible

TAPE

Vocational Education Media Center, Clemson University and Office of Voc. Educ., State Dept. of Educ., Columbia, S.C.

T & I – AUTOMOTIVE BODY REPAIR

Kit No. 49

INDEX OF TRANSPARENCIES

Identification	Number
Flow Chart	1
Blue Area Tools and Equipment	2
Blue Area Instructions	3
Blue Area Checkpoint	4
Safety Rules	
Red Area	5
Yellow Area	6

CARE OF YOUR TRANSPARENCIES

These transparencies are produced by the offset printing method at the Vocational Education Media Center, Clemson University, Clemson, South Carolina. They are designed to be an aid to you in your teaching program. Although they are developed by economy techniques, they will last many years if you will care for them. Here are some suggestions we believe will help you in caring for them:

1. The transparencies have been dusted during the printing process. This dust may be washed off with a damp, soft cloth. Use water only. The dust can cause unsightly shadows on your projector. Dry the transparencies gently with a cloth, paper towel, or by spreading them out on a table until dry.

2. Please do not write on the transparency with a grease or wax pencil. If you wish to emphasize something, place a clear sheet of plastic over the transparency and write on the clear sheet. This will prevent possible abrasion to the transparency.

3. Store this folder in a good filing cabinet. If you wish to mount them you may. Overlays should be hinged together to start with.

4. Store in a dry place.

5. Yes, the plastic will bend, tear and scratch – if you let it be abused. Cared for properly, it will last for many years.

6. To separate the transparency from the slip sheet, grasp the transparency in one hand and the slip sheet in the other, near the glue strip, and carefully pull the two apart.

T & I – AUTOMOTIVE BODY REPAIR

Kit No. 49

STUDENT
LEARNING ACTIVITY GUIDE

Prepared by

Mr. Frank Lanford
Seneca High School
Seneca, South Carolina 29678

State Department of Education
Office of Vocational Education
Prevocational Education
Columbia, South Carolina 29201

In Cooperation With

Vocational Education Media Center
Clemson University
Clemson, South Carolina 29631

1978

INTRODUCTION

In our world of mass transit, we depend heavily on the automobile as a means of transportation. Every year more cars are sold and put an additional burden on our already over-crowded highway system. Because of the ever-increasing numbers of cars in use, we can assume that the number of accidents will increase – and they do.

One purpose of this kit is to introduce you to the ever-growing field of automobile repair. We will think in small terms of dents and scratches because this is all we can handle in an activity such as this. To restore an automobile with heavy damage requires special tools and equipment not normally found in your workshop.

By using the step-by-step instructional activity guide, you will employ several simple methods to complete this activity. It is suggested that you work in pairs due to the nature of the project.

GOALS

The student will become familiar with the processes involved in preparing damaged metal to be filled with plastic filler.

The student will learn how to apply plastic filler to repair a damaged area.

The student will learn how to finish the damaged area, making it ready for painting.

DIRECTIONS

This activity guide is designed to be used as a self-instructional booklet for high school students. It is advised that you work in pairs due to the nature of this project. You will proceed, using this guide, following a general group meeting between the class and the instructor. This meeting will include a discussion of the safety points to be followed and the different stages necessary for successful completion of your project.

Your activity is broken down into three (3) major areas of completion. Each of these areas is color coded. You will find all of the tools and materials necessary for completion of the activity within each color area.

You must follow all directions and the step-by-step process in the student guide to properly complete the activity. At no time should you move to another step or operation without having successfully completed the previous step or objective and the Checkpoint for that objective.

MATERIALS

Secure from your instructor:

- 1 Student Learning Activity Guide
- 1 Checkpoint Booklet
- 1 piece of metal (approximately 2' x 2' (.61 m x .61 m) or whatever the instructor provides)

RED AREA– PREPARING YOUR METAL SURFACE

PROGRAMMED TEXT

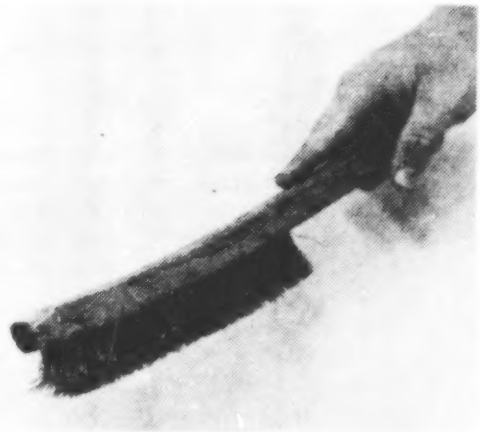
Instructional Objective 1

Given the necessary tools and equipment, the student will straighten and prepare the material by sanding and hammering.

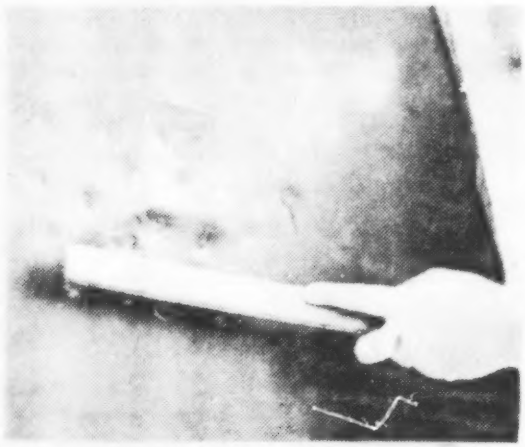
STEP 1 – Move to the RED AREA and review the tools and their proper names.

No. 1 – portable disc sander
No. 2 – all-purpose body dolly
No. 3 – safety glasses
No. 4 – wire brush
No. 5 – body hammer (pick)
No. 6 – body hammer (bumping)

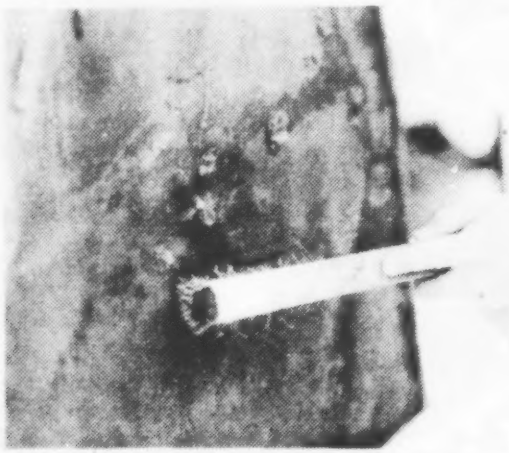
STEP 2 – Secure and put on a pair of safety glasses.



STEP 3 – Secure a wire brush from the red area.



STEP 4 – Scrub both surfaces (front and back) with the wire brush to rid any loose paint or dirt.

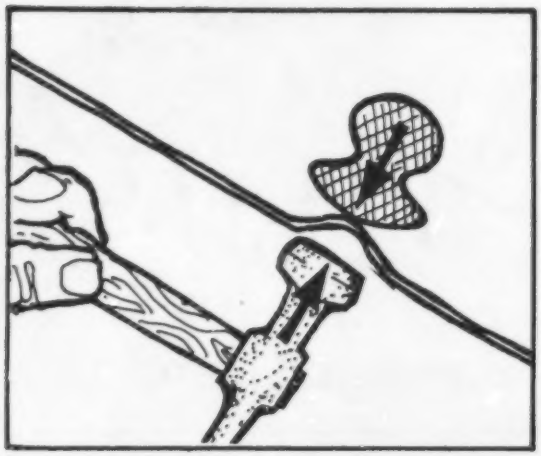


45

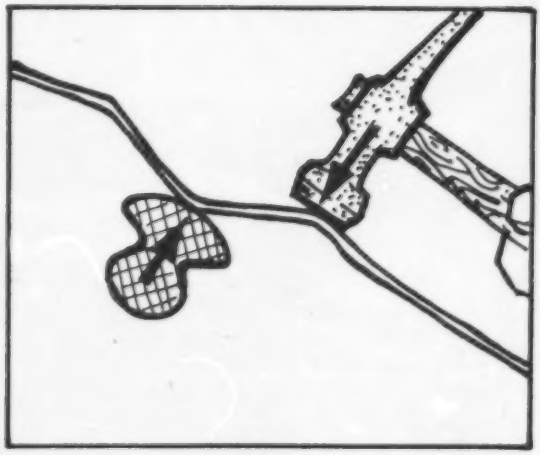
STEP 5 – Return the wire brush to the red area.

STEP 6 – Secure one "bumping" body hammer and one all-purpose dolly from the red area.

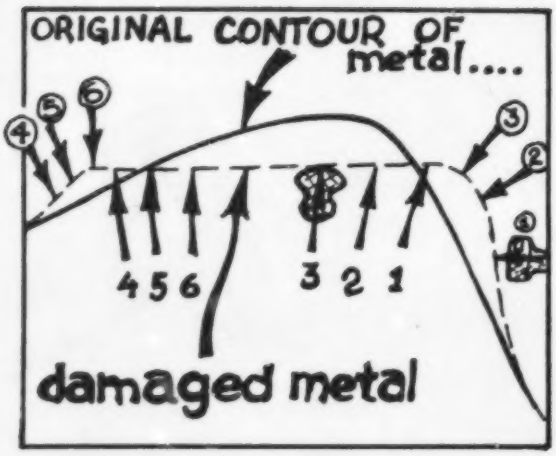
NOTE: There are two types of hammering using the body hammer and the all-purpose dolly.



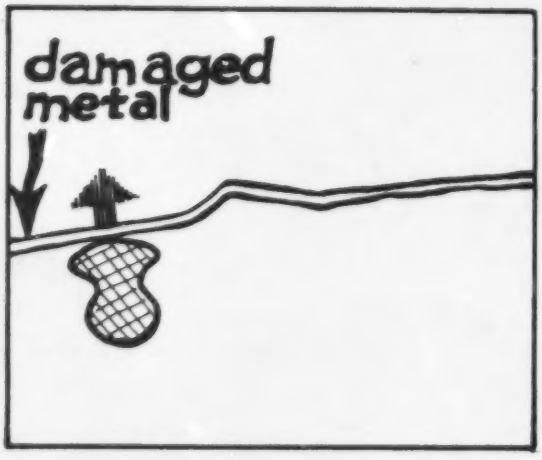
One is called on-the-dolly hammering . . . where the hammer strikes the metal on top of the dolly.



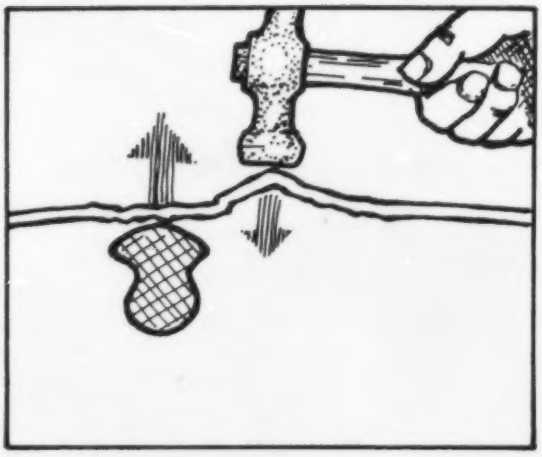
The second is called off-the-dolly hammering . . . where the hammer strikes the metal off to the side of the dolly. This off-the-dolly hammering usually results in less metal stretching and will be used primarily in our activity.



STEP 7 – First we must "unlock" the metal. The term unlock means we must unfold valleys and buckles as gently as possible without further stretching, creasing, or upsetting them as they are brought as nearly as possible to their original position or contour.



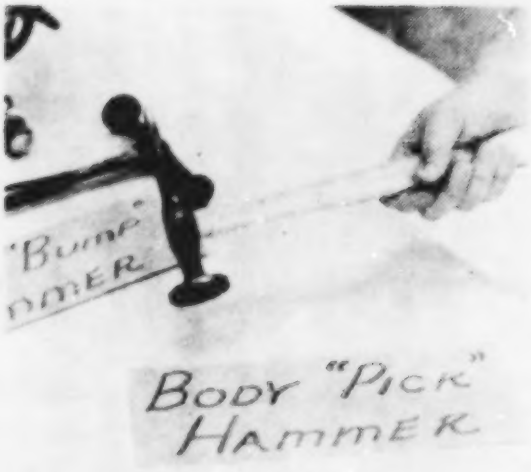
STEP 8 – We do this by applying a moderate amount of upward pressure with the dolly . . .



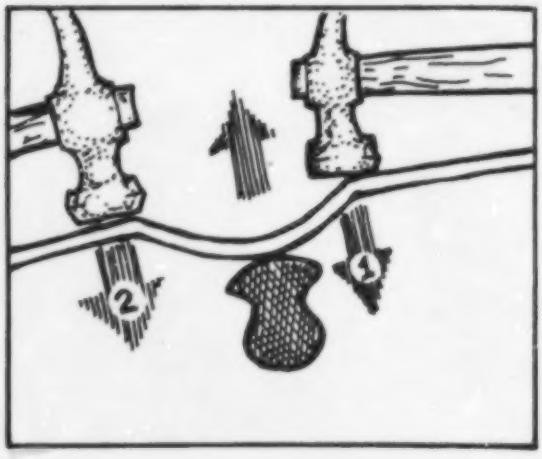
STEP 9 – . . . while at the same time striking, in an off-the-dolly method, the ridge or higher area with the body hammer in a downward position.

STEP 10 – Strike the surface of the metal with light hammer blows to eliminate the unnecessary stretching of the metal.

STEP 11 – Rough-out the majority of the area in the same manner.

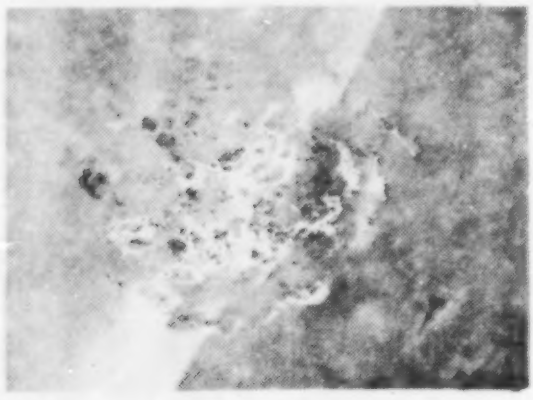


STEP 12 – Exchange the "bumping" hammer for the "pick" hammer.



STEP 13– Small areas or repressions in the flat sheet metal panels are straightened by applying upward pressure on the dolly, placed directly underneath the low area, and the two higher points are hammered down on the side of the dolly.

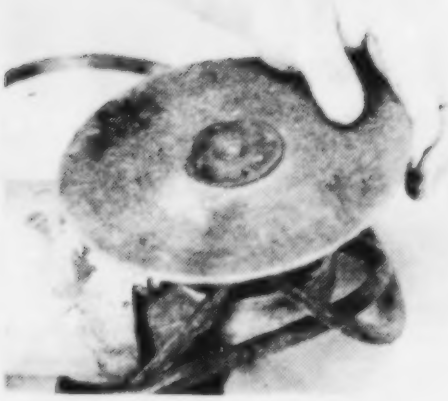
STEP 14 – Continue working out the areas by moving the body dolly and striking the metal with the hammer.



STEP 15 – Work the area as smooth as possible before moving on.

STEP 16 – Return the pick hammer and dolly to the red area.

STEP 17 – Read the safety poster.

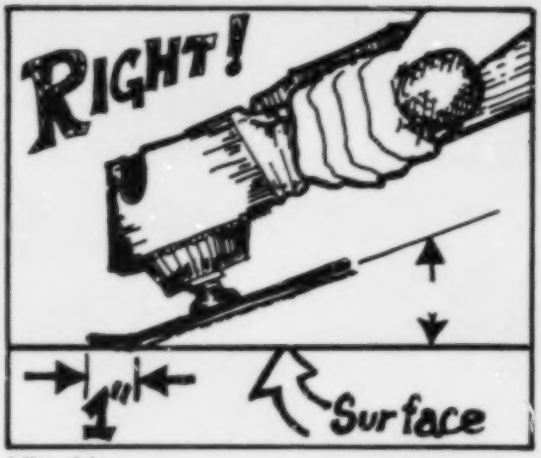


STEP 19 – Check the abrasive – make sure the edges are not worn off.

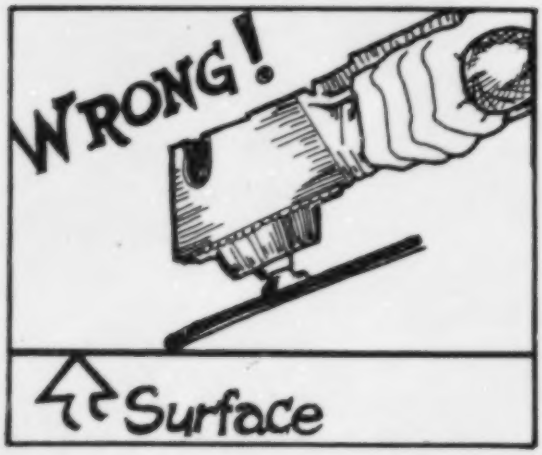
STEP 18 – Secure a power disc grinder from the red area.

STEP 20 – Plug in the disc sander, making sure the switch is in the OFF position.

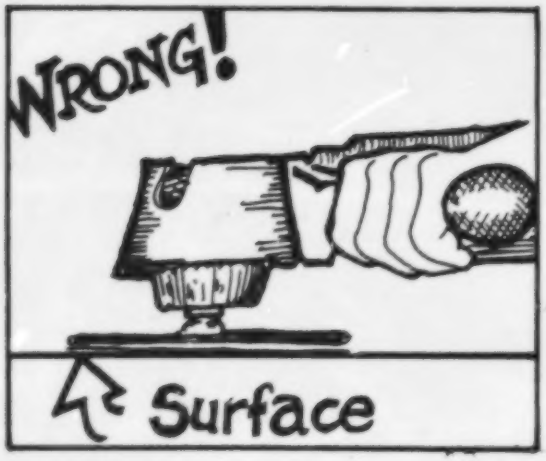
STEP 21 – Hold the sander at approximately a 20° angle to the work.



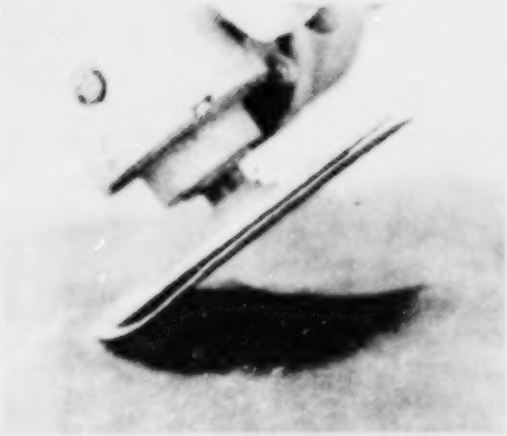
Like this . . .



Not this . . .

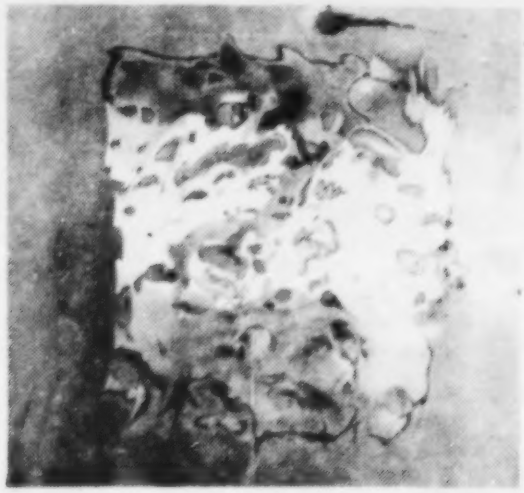


Or this . . .



STEP 22 – Turn the sander on and touch the disc to the damaged area at the proper angle.

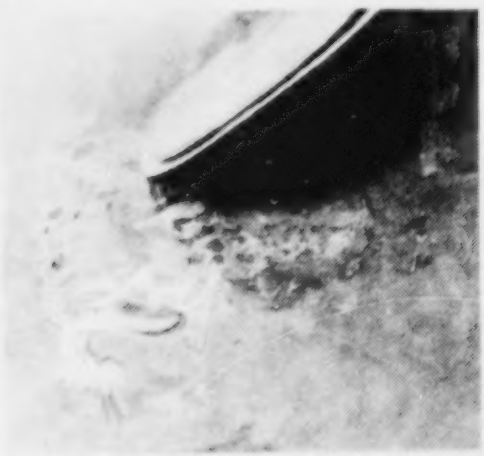
STEP 23 – Move the disc sander in long, sweeping back-and-forth strokes, with enough pressure to keep it from bounding.



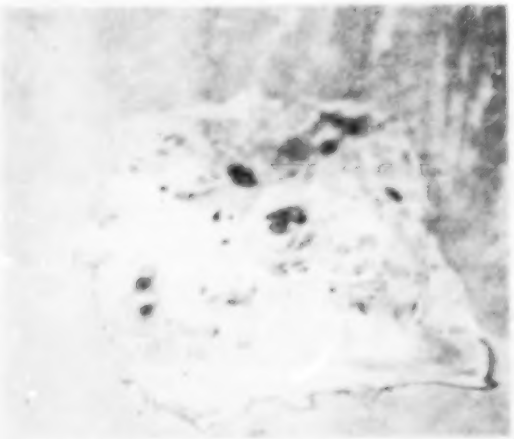
STEP 24 – Your work should now appear similar to this.

STEP 25 – Notice the low spots. They are still covered with paint.

STEP 26 – With the pick body hammer and dolly, raise these spots as you did in the first operation.

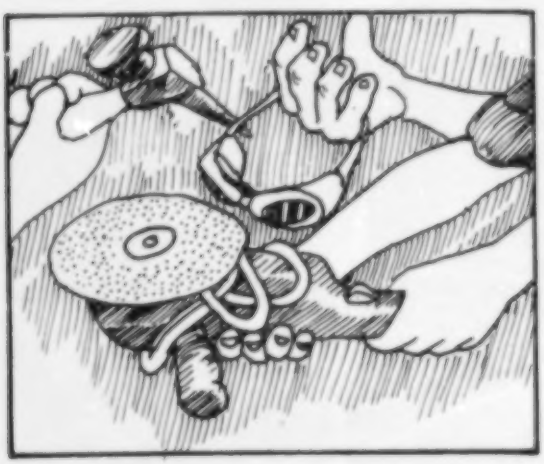


STEP 27 – Sand with the disc sander over the damaged area again, checking for low spots.



STEP 28 – Your metal should appear as such.

STEP 29 – With the pick body hammer, tap down any high spots. This allows you to fill the damaged area with plastic filler without leaving high spots in your finished work.



STEP 30 – Place hammer, glasses, and disc sander in appropriate area.

Check Point

Answer all the following questions on the RED AREA HANDOUT. DO NOT WRITE IN THIS BOOKLET.

Check "yes" or "no."

1. Have you raised all the dents back close to the original shape of the material? yes no
2. Have you removed all the paint and rust from the area to be filled? yes no
3. Did you tap the high spots on your metal down so that when you filled the area with plastic filler there were not any high ridges? yes no
4. Circle the correct answer:
   What type of hammering did you use with the body hammer and dolly?
   A. on-the-dolly hammering
   B. off-the-dolly hammering
5. After you have answered these questions, have your instructor check your work.
6. If you have successfully completed these questions, move to the Blue Area.
7. If you need to do more work, return to Step 1 and start over.

Instructional Objective II

Given the necessary tools and equipment, the student will fill and file the damaged area, preparing it for finishing.

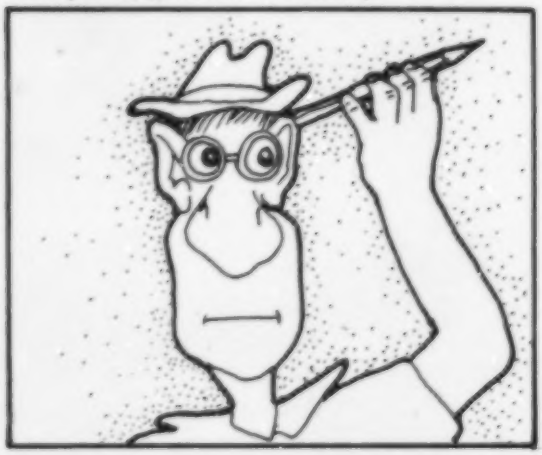
STEP 1 – Move to the BLUE AREA and review the tools and materials by their proper names.

No. 1 – plastic filler
No. 2 – hardener
No. 3 – spreaders or squeegees
No. 4 – files (flat)
No. 5 – screwdrivers
No. 6 – ball peen hammer
No. 7 – cardboard
No. 8 – sticks

STEP 2 – Secure a can of plastic filler from the blue area.

STEP 3 – Read the instructions on the back of the can to find out how much hardener is needed for the amount of filler to be used.

NOTE: This is very important – get help from your instructor if necessary.



STEP 4 – Decide on the amount of filler and hardener necessary.

STEP 5 – Secure one screwdriver, one piece of cardboard, and one stick.

STEP 6 – Open the can of plastic filler with a screwdriver.

STEP 7 – Stir filler with stick.

STEP 8 – Place the amount of filler needed on the square of cardboard (in our case around a golf-ball size).

– RED AREA

Check Point

Answer all the following questions on the RED AREA HANDOUT. DO NOT WRITE IN THIS BOOKLET.

Check "yes" or "no."

1. Have you raised all the dents back close to the original shape of the material? yes no
2. Have you removed all the paint and rust from the area to be filled? yes no
3. Did you tap the high spots on your metal down so that when you filled the area with plastic filler there were not any high ridges? yes no
4. Circle the correct answer:
   What type of hammering did you use with the body hammer and dolly?
   A. on-the-dolly hammering
   B. off-the-dolly hammering
5. After you have answered these questions, have your instructor check your work.
6. If you have successfully completed these questions, move to the Blue Area.
7. If you need to do more work, return to Step 1 and start over.

BLUE AREA – REPAIRING

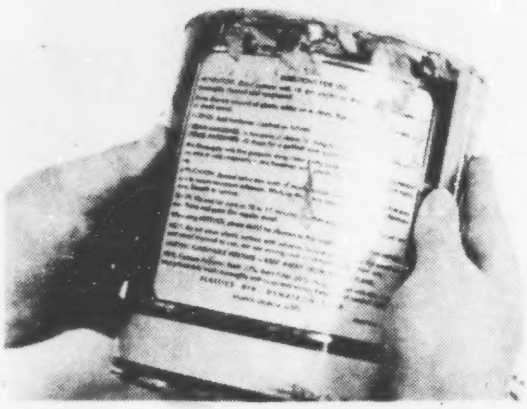
Instructional Objective II

Given the necessary tools and equipment, the student will fill and file the damaged area, preparing it for finishing.

STEP 1 – Move to the BLUE AREA and review the tools and materials by their proper names.

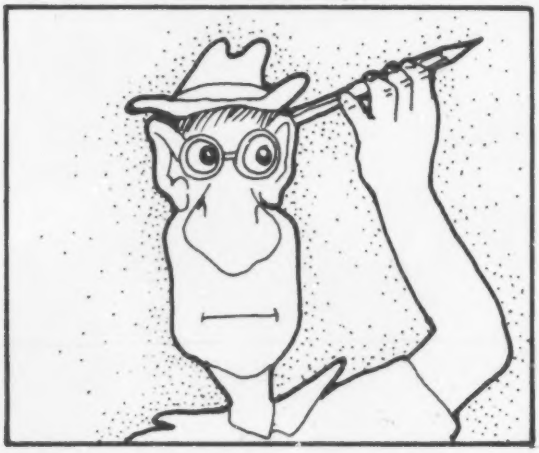
No. 1 – plastic filler
No. 2 – hardener
No. 3 – spreaders or squeegees
No. 4 – files (flat)
No. 5 – screwdrivers
No. 6 – ball peen hammer
No. 7 – cardboard
No. 8 – sticks

STEP 2 – Secure a can of plastic filler from the blue area.



STEP 3 – Read the instructions on the back of the can to find out how much hardener is needed for the amount of filler to be used.

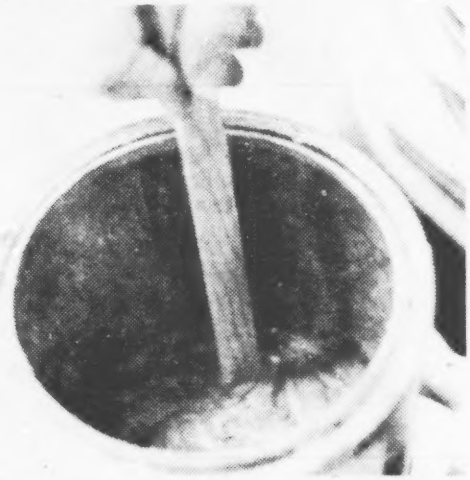
NOTE: This is very important – get help from your instructor if necessary.



STEP 4 – Decide on the amount of filler and hardener necessary.

STEP 5 – Secure one screwdriver, one piece of cardboard, and one stick.

STEP 6 – Open the can of plastic filler with a screwdriver.



STEP 7 – Stir filler with stick.

STEP 8 – Place the amount of filler needed on the square of cardboard (in our case around a golf-ball size).

– RED AREA

Check Point

Answer all the following questions on the RED AREA HANDOUT. DO NOT WRITE IN THIS BOOKLET.

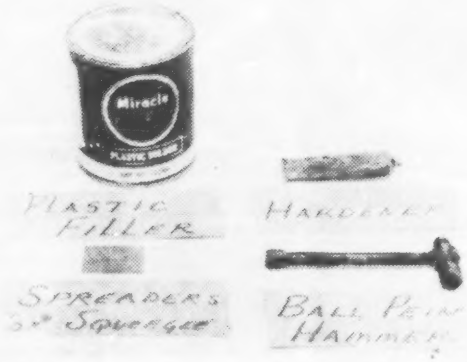
Check "yes" or "no."

1. Have you raised all the dents back close to the original shape of the material? yes no
2. Have you removed all the paint and rust from the area to be filled? yes no
3. Did you tap the high spots on your metal down so that when you filled the area with plastic filler there were not any high ridges? yes no
4. Circle the correct answer:
   What type of hammering did you use with the body hammer and dolly?
   A. on-the-dolly hammering
   B. off-the-dolly hammering
5. After you have answered these questions, have your instructor check your work.
6. If you have successfully completed these questions, move to the Blue Area.
7. If you need to do more work, return to Step 1 and start over.

BLUE AREA – REPAIRING

Instructional Objective II

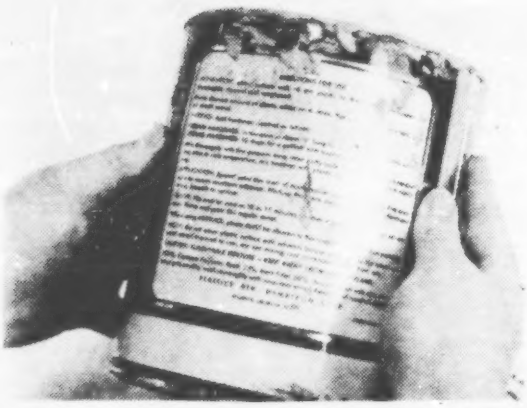
Given the necessary tools and equipment, the student will fill and file the damaged area, preparing it for finishing.



STEP 1 – Move to the BLUE AREA and review the tools and materials by their proper names.

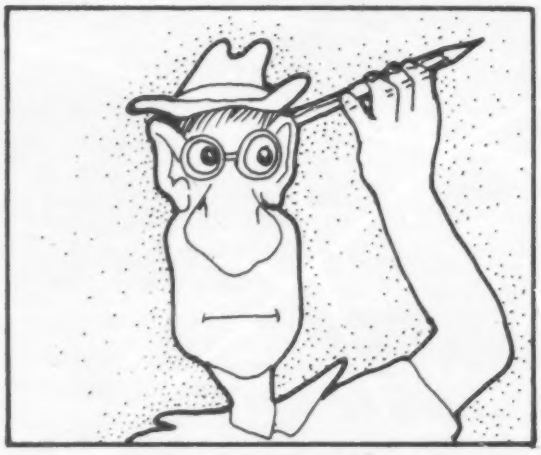
No. 1 – plastic filler
No. 2 – hardener
No. 3 – spreaders or squeegees
No. 4 – files (flat)
No. 5 – screwdrivers
No. 6 – ball peen hammer
No. 7 – cardboard
No. 8 – sticks

STEP 2 – Secure a can of plastic filler from the blue area.



STEP 3 – Read the instructions on the back of the can to find out how much hardener is needed for the amount of filler to be used.

NOTE: This is very important – get help from your instructor if necessary.

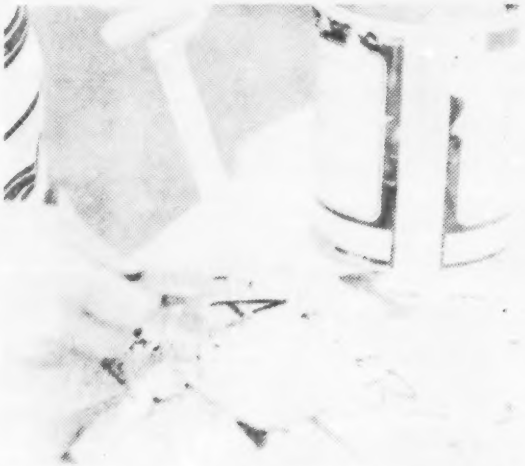


STEP 4 – Decide on the amount of filler and hardener necessary.

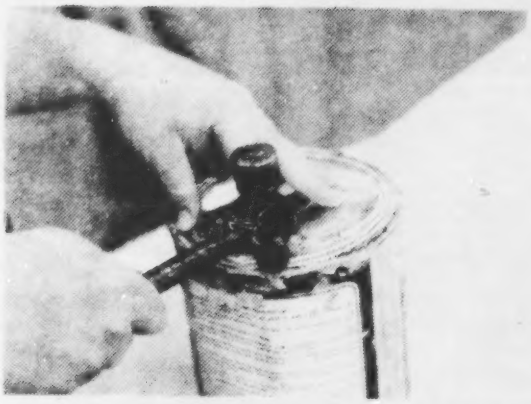
STEP 5 – Secure one screwdriver, one piece of cardboard, and one stick.

STEP 6 – Open the can of plastic filler with a screwdriver.

STEP 7 – Stir filler with stick.



STEP 8 – Place the amount of filler needed on the square of cardboard (in our case around a golf-ball size).

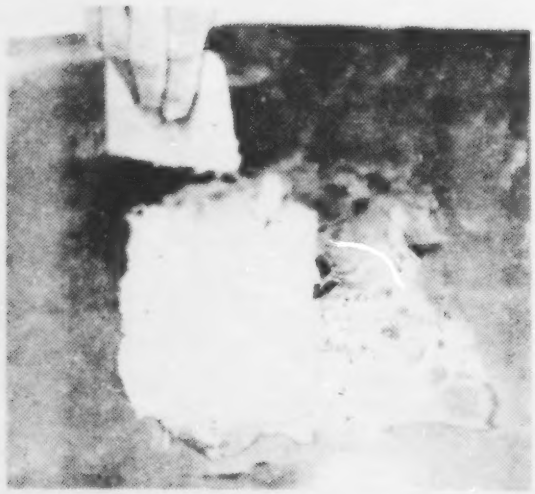


STEP 9 – Place top back on the can of filler and tap securely shut with hammer.

STEP 10 – Squeeze out the amount of hardener needed on the filler putty.

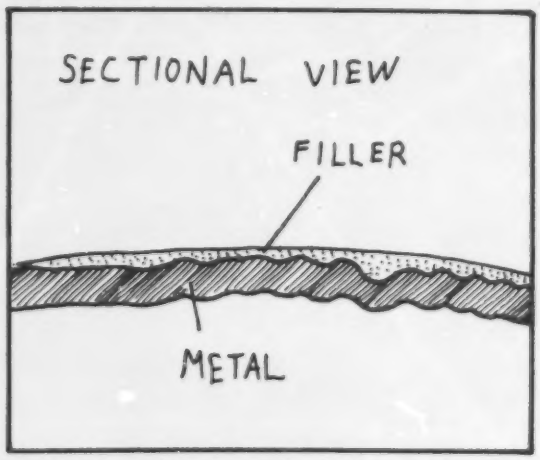
NOTE: Our filler said ¾ inch (1.91 cm) for each golf-ball size of filler.

STEP 11 – Mix the filler with the hardener until both have blended into one color.



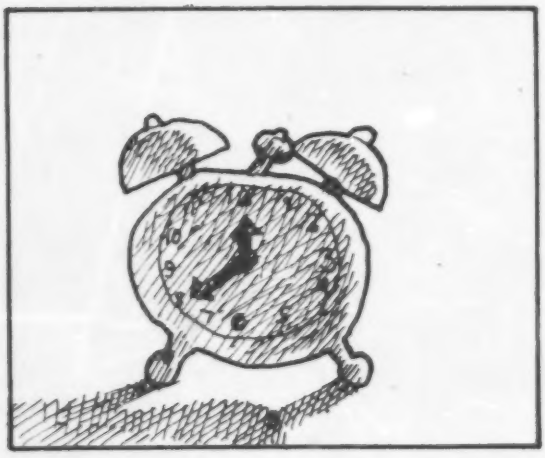
STEP 12 – Apply the filler to the bare metal by means of a spreader or squeegee in thin layers.

STEP 13 – Additional layers of filler are immediately applied over the first layer until you build the surface a little higher than the original area.

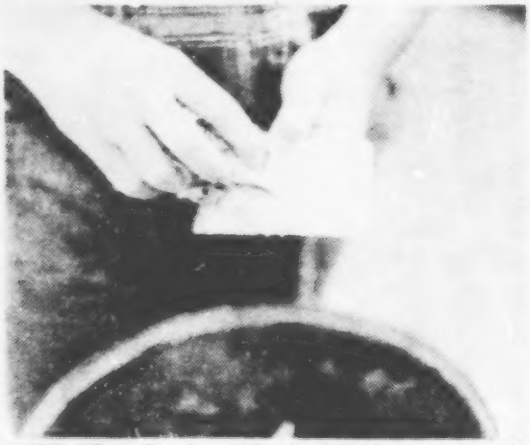


STEP 14 – This allows for filing and sanding down of the filler to the original body surface level.

STEP 15 – Dispose of any mixed filler that is left over. Do NOT put it back in the filler can.



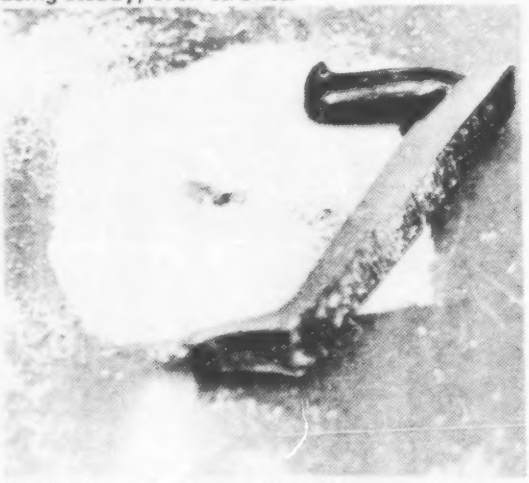
STEP 16 – Allow the filler to dry for at least 20 minutes.



STEP 17 – During this drying time, clean off your spreader and return it to its appropriate place.

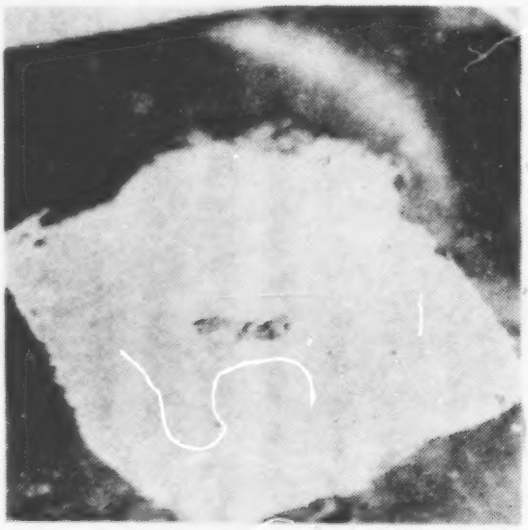
STEP 18 – After approximately 20 minutes, secure a surform body file from the blue area.

STEP 19 – Start shaping the body filler with the file, working at angles across the metal using steady, even strokes.



STEP 20 – Work the filler down until proper sanding will smooth the surface.

STEP 21 – Place the body file back in the appropriate area.



STEP 22 – Your work should appear similar to this.

Check Point

BLUE AREA

Answer the following questions on the BLUE AREA HANDOUT. DO NOT WRITE IN THIS BOOKLET.

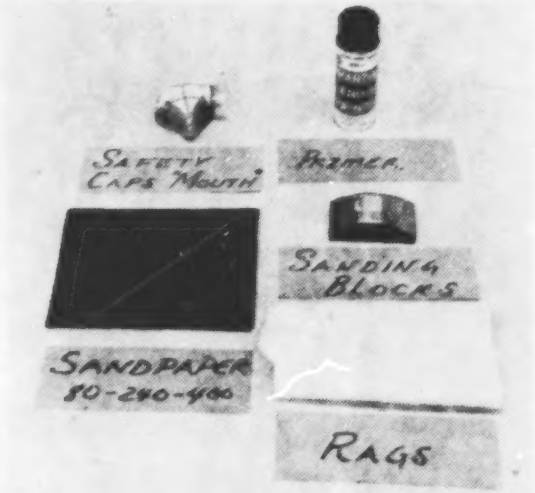
Check "yes" or "no."

1. Did you mix the correct amount of hardener with the plastic filler? yes no
2. Did you apply enough filler to your work area to build it up a little for sanding? yes no
3. Did you wait at least 20 minutes before filing your filler? yes no
4. Did you place the cap on the filler container tightly? yes no
5. After you have completed these questions, have your instructor check your answers.
6. If you have successfully completed these questions, move to the Yellow Area.
7. If you need to do more work, return to step 1, Blue Area, and correct your mistakes.

YELLOW AREA – FINISHING

Instructional Objective III

Given the necessary tools and materials, the student will successfully sand and prime the work surface area in preparation for a finished coat.



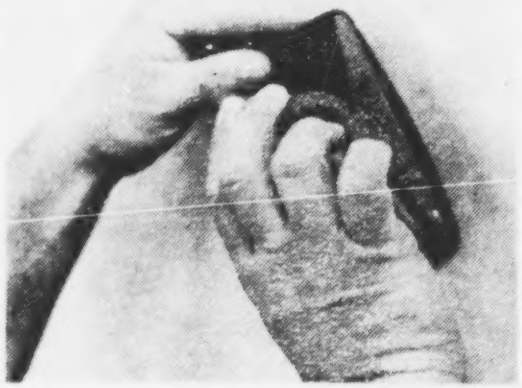
STEP 1 – Go to the YELLOW AREA and review the tools and materials by their proper names.

No. 1 – sanding blocks
No. 2 – particle masks
No. 3 – rags
No. 4 – primer
No. 5 – sandpaper, 80, 240, and 400 grit

STEP 2 – Read safety poster.

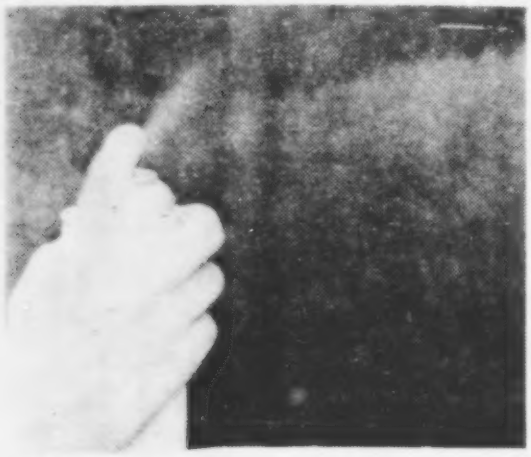
STEP 3 – Put on a particle mask.

STEP 4 – Secure a sanding block and a piece of dry, 80 grit sandpaper.



STEP 5 – Mount the piece of sandpaper on the sanding block.

STEP 6 – Sand the entire surface using small circular motions until the surface is free of rough spots.



STEP 7 – With a can of spray primer from the yellow area, spray a thin coat over your work and allow to dry.

STEP 8 – Change your sandpaper to the 240 grit...

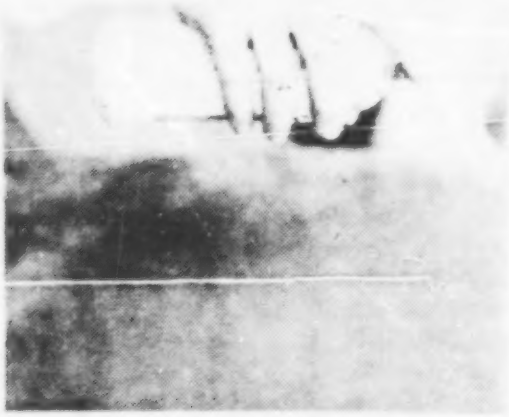
... and sand the entire surface in circular motions.

STEP 9 – Begin to featheredge the old paint to the metal and plastic filler, using small circular motions.

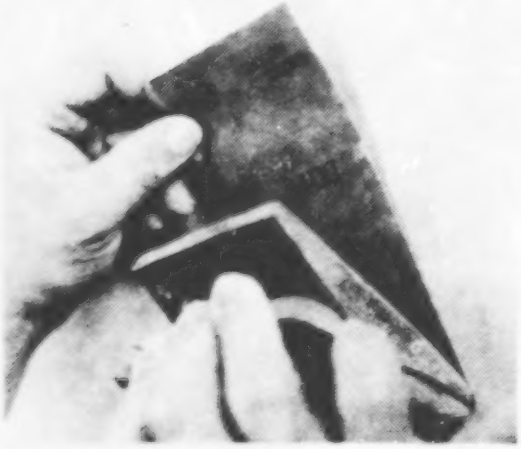
STEP 10 – Sand entire surface as smooth as possible with 240 grit sandpaper.

62

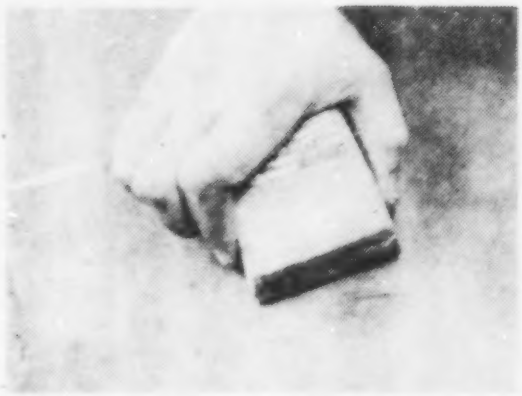
STEP 11 – Wipe area with a dry cloth.



STEP 12 – Again, spray a thin coat of primer over work area. Hold can 6 to 12 inches (15.24 to 30.48 cm) away while spraying.

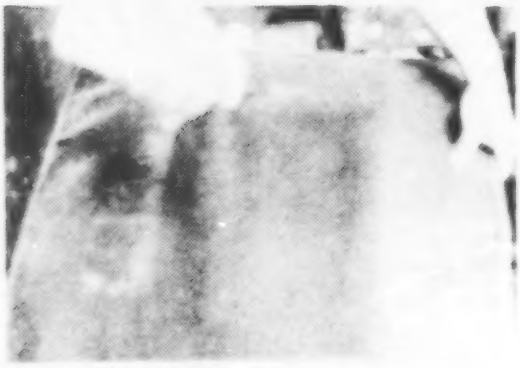


STEP 13 – After the primer is dry, change sandpaper to 400 grit.

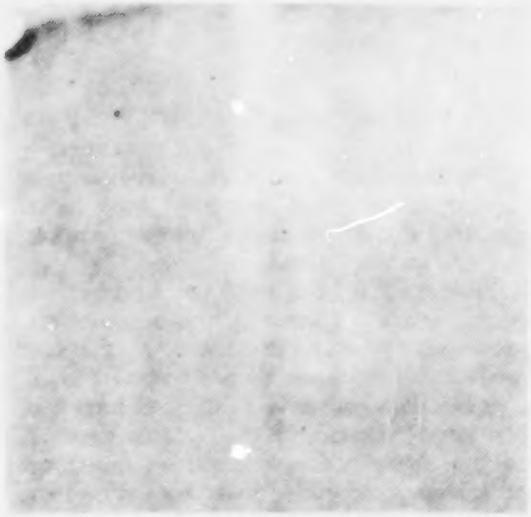


STEP 14 – Sand area with 400 grit sandpaper in long, even strokes until surface is smooth and all edges are feathered in.

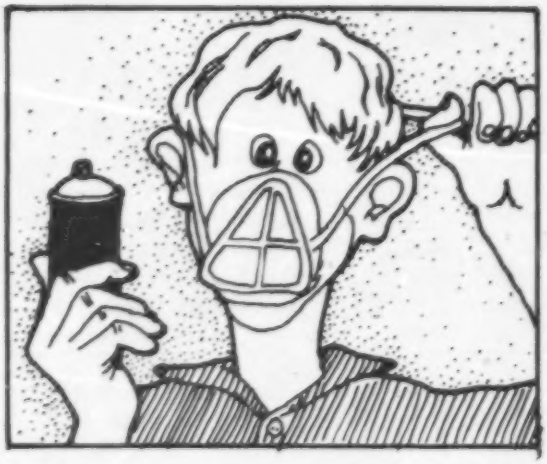
STEP 15 – Your surface should appear as such.



STEP 16 – Spray your work area with a thin coat of primer.



STEP 17 – Your finished work should resemble this.



STEP 18 – Return all tools and materials to their proper place.

Check Point

YELLOW AREA

Answer the following questions on the YELLOW AREA HANDOUT. DO NOT WRITE IN THIS BOOKLET.

Check "yes" or "no."

1. Did you use 80 grit sandpaper to start your sanding? yes no
2. Did you then use 240 and 400 grit sandpaper to finish? yes no
3. Did you spray a thin coat of primer between each sanding? yes no
4. Did you featheredge the old paint into your damaged area? yes no
5. Is your finished surface free of scratches and dents? yes no
6. If you have completed these questions, have your instructor check your work.
7. If you have successfully completed your work, sign your name to this booklet and turn it over to your instructor.
8. If additional work is necessary, return to step 1, yellow area, and correct your mistakes.

64

741.684-026 PAINTER, SPRAY (any ind) spray-gun operator.

Sprays surfaces of machines, manufactured products, or working area with protective or decorative material, such as paint, enamel, glaze, *gelcoat*, or lacquer, using spray gun: Cleans grease and dirt from product, using materials, such as lacquer thinner, turpentine, soap, and water. Applies masking tape over parts and areas that are not to be coated [MASKER (any ind.)]. Fills cavities and dents with putty to attain smooth surface. Selects and mixes coating liquid to produce desired color, according to specifications, using paddle or mechanical mixer. Pours coating liquid into spray container and connects gun to airhose, using wrenches. Turns sprayer valves and nozzle to regulate width and pressure of spray, according to knowledge of painting technique. Pulls trigger and directs spray onto work surface to apply prime or finish coat. Coats area inaccessible to hand spray, using brush. Cleans spraying equipment and brushes with solvent. May heat and spray wax onto products after they are tested. May use acid, wire brush, or steel wool to remove rust from metal. May paint designs on rug surfaces for decorative purposes or for use as guidelines in carving rugs, using spray gun and stencil, and be designated STENCILER (carpet & rug). May be designated according to article sprayed as HAT SPRAYER (hat & cap); PAINTER, ORDNANCE (firearms); SPRAYER, RAILROAD CAR (loco. & car bldg. & repl; r.r. trans.); or according to material used as GEL-COAT SPRAYER (ship & boat bldg. & rep.; sports equip.); PORCELAIN-ENAMEL SPRAYER (any ind.). Additional Titles: CERAMIC SPRAYER (brick & tile; pottery & porc.); ENAMELER (pottery & porc.); ENAMEL SPRAYER (any ind.) I; GLAZE SPRAYER (auto. mfg.); LACQUER SPRAYER (any ind.) I; PAINTER, INSIGNIA (aircraft-aerospace mfg.; auto. mfg.); PANEL FINISHER (paint & varn.); PRIMER SPRAYER (aircraft-aerospace mfg.; auto. mfg.); SPRAYER, AUTO PARTS (auto. mfg.); THINNER SPRAYER (auto. mfg.); UNDERCOAT SPRAYER (aircraft-aerospace mfg.; auto. mfg.).

807.381-010 AUTOMOBILE-BODY REPAIRER (auto ser.) automobile-body worker; body-line finisher; body repairer, bus; dent remover; door repairer, bus; metal bumper; metal shrinker; metal worker; touch-up finisher, metal.

Repairs damaged bodies and body parts of automotive vehicles, such as automobiles, buses, and light trucks according to repair manuals, using handtools and power tools: Examines damaged vehicles and estimates cost of repairs [SHOP ESTIMATOR (auto ser.)]. Removes upholstery, accessories, electrical and hydraulic window-and-seat-operating equipment, and trim to gain access to vehicle body and fenders. Positions *dolly block* against surface of dented area and beates opposite surface to remove dents, using hammer. Fills depressions with solder or other plastic material. Removes damaged fenders, panels, and grills, using wrenches and cutting torch, and bolts or welds replacements parts in position, using wrenches or welding equipment. Straightens bent frames, using hydraulic jack and pulling device. Files, grinds, and sands repaired surfaces, using power tools and handtools. Refinishes repaired surface, using paint spray gun and sander. Aims headlights, alines wheels, and bleeds hydraulic brake system. May paint surfaces after performing body repairs and be designated AUTOMOBILE-BODY REPAIRER, COMBINATION (auto. ser.). May repair or replace defective mechanical parts [AUTOMOBILE MECHANIC (auto. ser.)].